
CHAPTER 3: Wastewater Management

Michigan Department of Environmental Quality (MDEQ) has regulations regarding the discharge of industrial and sanitary wastewater to surface waters (streams, lakes etc.), groundwater (i.e., septic systems), and into a municipal sewer system. Wastewater discharges to waters of the state are regulated under ***Parts 31 and 41 of the Natural Resources Environmental Protection Act, Public Act 451 of 1994, as amended.***

3.1. Types of Wastewater

Your shop may generate industrial wastewater from several sources including: film and plate processing; spent fountain solution; equipment washing; and waterbased inks, coatings, adhesives, and cleaning solutions. In addition, if you store anything outside where it can come into contact with rainwater, and the material outside (raw materials, intermediate products, final products, waste materials, or material handling equipment or activities) is related to your industrial activity, then the storm water is a regulated industrial wastewater. For the purposes of this chapter, sanitary wastewater is the wastewater generated in your restroom and breakroom areas.

3.2 Disposal Options

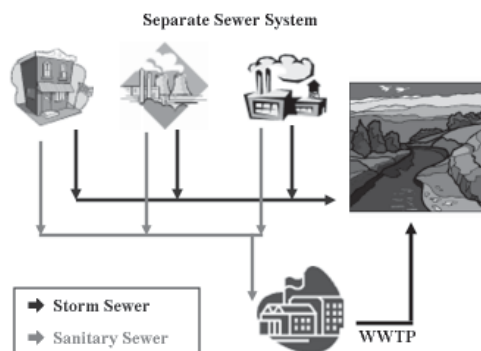
Your disposal options depend on the type of wastewater your business generates and the location of your company.

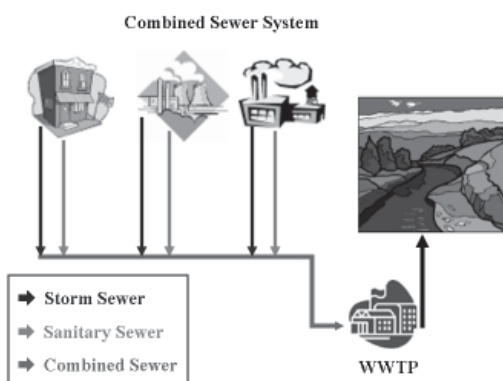
For the purposes of this chapter, an “indirect” discharge is wastewater that is treated by a Publicly Owned Treatment Works (POTW) before it is discharged to waters of the state. Whereas, a “direct” discharge goes directly into waters of the state (groundwater, streams, lakes etc.) without treatment from a POTW via a separate storm sewer system (picture below), a ditch, or other conveyance.

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When a sewer system is called “combined” it means that the sewers were designed to carry both storm water and nonstorm water (i.e. sanitary and nondomestic source wastewater) to the POTW for treatment. If you are unsure whether your storm





sewer system is combined or separate, then contact the municipality that owns and operates your system (usually the local Public Works Department).

Therefore, discharge options include:

- Indirect Discharges to a POTW, also known as municipal wastewater treatment plant (WWTP).
 - Permitted and registered hazardous or liquid industrial waste transporters (for liquid waste that cannot be discharged directly or in any other fashion).
- Surface water discharge (includes direct discharges to a river, stream, drain, storm sewer, or ditch).
 - Groundwater discharge (includes seepage lagoons, septic tank/tile field systems, and irrigation systems).

3.2.1 Indirect Discharges to a POTW

You may discharge industrial wastewater to a municipal sewer system after receiving approval from the local sewer authority (or POTW). MDEQ regulates the discharges of wastewater from treatment plants to local surface waters (e.g. streams, rivers, etc.) and groundwater. In turn, the sewer authorities or treatment plants require, through local sewer ordinances, industrial wastewater dischargers to comply with certain discharge limits and sewer use permits.

There are variations in the design and operation of POTWs that determine the capabilities of the plant to accept and treat certain wastes. Many treatment facilities can accept a variety of industrial waste substances. However, municipalities with lagoon treatment systems might not accept any industrial wastewater, particularly if the system has a groundwater discharge.

Regardless of municipality or regional treatment plant, there are usually basic general prohibitions on the types of wastewater that cannot be discharged to the sewer. These general prohibitions include:

- Do not discharge pollutants that cause pass through or interfere with the POTW;
- Do not discharge pollutants that create a fire or explosion hazard in the POTW;
- Do not discharge pollutants that corrode sewer conveyance or the POTW (specifically any wastewater with a pH of less than 5);
- Do not discharge solid or viscous pollutants that could interfere with wastewater flow;
- Do not discharge pollutants that result in toxic gases, vapors, or fumes within the POTW at levels that may cause worker safety or health problems; or
- Do not discharge any trucked or hauled pollutants except at discharge points designated by the local sewer authority.

There may also be discharge limits for organic and metal pollutants. The limits most likely to be of concern to a printer are: BOD₅, COD, Total Suspended Solids, oil and grease, phenol, silver, copper, and zinc.

You are required to determine what local limits and pretreatment requirements are applicable to your shop's operations. Contact the local sewer authority or sewer treatment plant for information on the types of waste that they can accept. Obtain a copy of your local ordinances and discuss whether discharge limits and permit requirements apply to your discharge. Also, review with your local sewer authority any requirements for discharge such as monitoring, recordkeeping, sampling, and whether industrial pretreatment regulations apply.

3.2.2 Hazardous and Liquid Industrial Waste Transporters

Wastewater, excluding septage waste, which is not discharged to a POTW nor permitted to be discharged to surface or groundwater, must be taken to a recycling or disposal facility. A company may haul its own liquid waste without being permitted by Waste and Hazardous Materials Division (WHMD) if conditions in Chapter 2 are met or it may hire permitted and registered hazardous or liquid waste transporters. Industrial wastewater and storm water hauled by permitted and registered transporters must have manifests accompanying the shipment. See Chapter 2 for details on manifest requirements and how to obtain the identification number for your business that must be included on the manifests. Manifests are not required for septage waste hauled by licensed septage waste transporters. Licensed septage waste haulers cannot transport liquid industrial or hazardous waste.

3.2.3 Surface Water Discharge

MDEQ and the U.S. Environmental Protection Agency (USEPA) regulate the direct discharge of wastewater to rivers, streams, or lakes. You must obtain a wastewater discharge permit (also called a National Pollutant Discharge Elimination System or NPDES permit), regardless of the wastewater volume or characteristics. In addition, the discharged wastewater will have to meet specific effluent requirements, and you will be subject to wastewater monitoring and reporting requirements. If you have no other option for wastewater disposal, and intend to discharge to surface waters, you must submit an NPDES application to MDEQ to obtain a permit at least 180 days before discharging any wastewater. Except for industrial storm water permitting, the application and approval process for industrial wastewater permitting is thorough and resource intensive. You may want to seek a consultant with expertise in these types of permits (such as when seeking permits to discharge process wastewater and noncontact cooling water). You should seriously consider all options before discharging to surface waters. For more information, call your MDEQ district office or the Environmental Assistance Center at 800-662-9278.

3.2.3.a Storm Water

Many industrial activities create sediments and harmful levels of certain toxics and chemicals. These substances collect on facility premises and can be discharged to surface waters of the state during rainfall events through ditches, swales, streams, or storm sewers. MDEQ regulates storm water discharges from industrial activities, including printers with an SIC code 27XX,

through the permit process. For printers, an NPDES permit is required for storm water discharges from all outside areas where material handling equipment or activities, raw materials, intermediate products, final products, waste material, byproducts, or industrial machinery are present. If a condition of no-exposure exists; meaning these industrial operations or materials are protected by a storm resistant shelter and not exposed to rain, snow, snowmelt, and/or runoff, then you can claim an exemption from a permit. All printers with a primary SIC code 27XX are required to do one of two things: 1) obtain an NPDES permit; or 2) assure that a no-exposure condition exists and submit a no-exposure certification to MDEQ. Call MDEQ or the Environmental Assistance Center at 800-662-9278 to obtain the permit application (also called a Notice of Intent) or the no-exposure form.

The following things are considered exposure thereby requiring a permit:

- Outside storage of chemicals and empty containers;
- Uncovered aboveground storage tanks;
- Uncovered ink fill pipes;
- Outside fuel dispensing operations;
- Onsite fleet vehicle maintenance shops;
- Contaminated or oil soaked pallets;
- Open compactors or dumpsters (no lids or overhang roofs); and
- Uncovered loading dock platforms.

There are three options if you have outside activities and discharge storm water to surface waters.

Option 1: Relocate materials and/or activities inside and submit a no-exposure certification.

Option 2: Build shelters around or roofs over materials and/or activities conducted outside and submit a no-exposure certification.

Option 3: Continue your activities and obtain a storm water discharge permit. (Storm Water NPDES General Permit or individual permit).

3.2.3.b. Permit Coverage for Storm Water Discharges

There are two types of industrial storm water discharge permits, namely an individual permit and a general permit. General permits are preferred, because they may not require any storm water testing, while individual permits likely will require testing. All printers with outside activities and discharging storm water are required to have at least a general permit.

To obtain a general permit, you must submit a Notice of Intent (NOI). In the unlikely event that you need to obtain an individual permit, you must submit an individual application. The NOI and individual permit application form can be obtained from your nearest regional MDEQ office, or on-line at www.michigan.gov/deq. Select “Water” then “Surface Water” and either “NPDES Permits” for the individual application or select “Water” then “Surface Water” then “Storm Water” then “Industrial Facilities” and finally “How Do I apply” for the NOI.

3.2.3.c. Storm Water General Permit Requirements

Printers with a general storm water permit must prepare and implement a storm water pollution prevention plan (SWPPP). A sample/template plan can be found on-line at www.michigan.gov/deq. Select “Water” then “Surface Water” then “Storm Water” and finally, “Industrial Facilities.” The SWPPP is intended to help printers identify activities and industrial areas which contribute to storm water contamination and where controls are necessary. Implementation of controls to prevent the pollution of storm water, combined with visual inspections, help avoid the necessity of analytical monitoring of the storm water discharges. The general permit also requires that a person at the facility get certified as a storm water certified operator through the State of Michigan. Getting certified is free; it involves studying a manual (41 pages) and taking an exam at any district office. Training materials and exam schedules can be found on-line through the storm water page listed above, or you can call the Environmental Assistance Center at 800-662-9278.

3.2.4 Groundwater Discharge

All discharges to the groundwater must be authorized. Discharges that go to septic systems, seepage lagoons, or directly onto the ground are all considered groundwater discharges. Companies in rural locations or communities without access to a POTW will have septic systems or a private treatment lagoon. A new septic system for your sanitary wastewater must be authorized by your local health department if the system handles less than 10,000 gallons per day. If the sanitary wastewater discharge volume is greater than 10,000 gallons per day, or if you are planning to install a package plant or seepage lagoon, you must obtain a permit from the Water Division (WD). Nonsanitary wastewater discharged to groundwater is regulated under **Part 31 of Public Act 451** and generally is not allowed. Waste characterizations are required to evaluate the potential impact of the discharge on groundwater quality before approval can be given to discharge. Discharge of floor drain waste is not allowed because it is difficult, if not impossible, to properly characterize. Contact the WD or the local district office (see Appendix C) to determine if any of your nonsanitary waste may be discharged to the groundwater.

The permit issued by the WD is called a “State Permit.” A State Permit requires you to regularly monitor your discharge and submit reports to the WD. These requirements will be identified in your permit. A State Permit is not necessary for seepage ponds that only hold noncontaminated storm water if no other wastewater is allowed into that pond.

Applications:

Applications for discharge permits are available from the WD offices in Lansing or your local district office (see Appendix C). You may receive help in filling out your application by contacting any of those offices.

3.3 Noncontact Cooling Water

Some printing facilities, especially those who engage in a flexographic printing process may generate a non-contact cooling wastewater, when water is circulated through a machine for cooling purposes. Disposal options for this process wastewater include:

- Option 1: Obtain authorization from your POTW to discharge to your POTW.
- Option 2: Obtain an NPDES permit from the MDEQ to discharge to surface waters. An NPDES general permit is available and may be obtained for this type of discharge.
- Option 3: Obtain a ground water discharge permit from the MDEQ or an exemption to discharge to groundwater.
- Option 4: Investigate pollution prevention alternatives, thereby eliminating the discharge.

When using chemicals in noncontact cooling water, (such as to prevent scale build-up, freezing or slime growth), the chemical must be identified to the permitting authority. Since these chemicals (also called water treatment additives) can cause problems at the treatment works and can impact rivers, lakes, and streams; the permitting authority may have specific reviews and restrictions for these chemicals. Therefore, discuss the use of water treatment additives with the appropriate permitting authority before using them.

3.4 Film Developing Solution and Rinse Water

Solutions from film developing and rinsing may not be discharged to the surface water without a permit or to the groundwater without a permit or exemption. To discharge water to the POTW, you must have authorization from the local treatment authority. Further information on these disposal options is discussed in Chapter 3.2.

It is unlikely that you will be able to discharge to the surface water or groundwater without prior treatment of this wastewater. The silver content of the solution may need to be reduced and the pH adjusted prior to discharge to the municipal wastewater treatment plant. Companies purchase recovered silver and desilvered solutions that can be refreshed and reused allowing silver recovery equipment to pay for itself in a short time. Removing much of the silver may also make the solutions reusable or at least bring the level low enough to allow you to discharge it rather than paying to have it hauled as a hazardous waste. See Chapter 2.3.2.c and 6.5.2.b for more information on silver recovery and waste management.

3.5 Fountain Solutions

Fountain solutions are generally allowed to be discharged to municipal wastewater treatment systems with prior approval. They usually have a low pH, and contain some organic compounds like gum arabic, and a wetting agent like isopropyl alcohol. You might have to neutralize the pH but most municipal wastewater treatment plants can handle the alcohol and organic compounds without treatment. It is likely that you will not be required to treat the solution prior to discharge to the sewer. If your fountain solution has isopropyl alcohol you will more likely have concerns with air quality rather than water quality issues. Discharge to the surface water or groundwater will require a permit. Chemicals contained in the fountain solution will likely require treatment prior to discharge, making this a costly option. Wastewater that cannot be discharged will have to be removed by an industrial or hazardous waste hauler depending on the substance and concentration (see Chapter 2).

3.6 Platemaking

Platemaking solutions are generally allowed to be discharged to municipal wastewater treatment systems with prior approval. It is likely that you will not be required to treat the solution prior to discharge to the sewer with the possible exception of pH adjustment. Discharge to the surface water or groundwater will require a permit. Chemicals contained in the platemaking solution will likely require treatment prior to discharge, making this a costly option. Wastewater that cannot be discharged will have to be removed by an industrial or hazardous waste hauler depending on the substance classification (see Chapter 2).

3.7 Restrooms and Breakrooms

Standard sanitary water may be discharged to a POTW, privately owned sanitary treatment system, or septic system without special treatment. Pouring nonsanitary wastes down the drain or in the toilet is prohibited, unless you discharge to a municipal treatment system AND it is specifically authorized by your local sewer authority.

3.8 Floor Drains

Prior authorization or a permit must be obtained for the discharge of any fluids into floor drains that will reach groundwater, surface water, or a sanitary sewer. Some POTWs will accept waste and waste water from floor drains, such building wash down water, antifreeze, engine wash down water, small quantities of oily substances, etc., at specific rates and times. Contact the POTW for written authorization before discharging any waste or wastewater through floor drains.

It is unlikely that a groundwater or surface water discharge permit will be issued for floor drain waste as most of these discharges are prohibited in local building and plumbing codes and it is difficult to characterize the proposed waste stream. If floor drains are connected to holding tanks, discuss waste management requirements with the WHMD district office. It will be necessary to characterize the collected waste to determine how it must be managed (see Chapter 2). **Section 701** of the **2000 Michigan Plumbing Code** addresses floor drains. To get a copy of the **Michigan Plumbing Code** contact the Michigan Department of Consumer and Industry Services (CIS), Bureau of Construction Codes, Plumbing Division at 517-241-9330 or at www.michigan.gov/cis.

3.9 Air Compressor and Cooling System Blowdown

Compressor and cooling system blowdown is a process waste stream that should not be directed to surface waters or groundwater due to the oil present in the waste stream. The recommended option for addressing this discharge would be contacting the POTW for authorization to discharge and then redirect the discharge to the POTW. If that is not an option, then it should be collected and shipped off-site as a liquid industrial waste (see Chapter 2).

3.10 Pit or Trench Drain Sludge

Pit or trench drain sludge is the semi liquid residue that accumulates in the bottom of trench drains or holding tanks that receive industrial wastewater. Trench drains are typically located in

loading or unloading areas. This residue may contain oil, antifreeze, heavy metals, degreasers, or other contaminants. It cannot be discharged onto the ground, or into groundwater, surface water, or septic systems. If it contains free liquids, it cannot go into the solid waste dumpsters. It can go to a POTW with their prior approval, but it often requires some type of pretreatment such as passing through a grit chamber and/or an oil/water separator. Unless contaminated at levels making it a hazardous waste, this waste is often shipped off-site as a liquid industrial waste (see Chapter 2).

3.11 Annual Wastewater Reporting

A completed Annual Wastewater Report (AWR) must be filed with the MDEQ by every person doing business within the state who either discharges wastewater to the waters of the state or to any sewer system. The report is required pursuant to the **Wastewater Reporting Rules (R.299.9001 through 299.9008)** promulgated under **Part 31 (Water Resources Protection)** of the **Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended**. The Wastewater Reporting Rules are now in full force and effect. Wastewater reports under the revised AWR program are due August 1, 2002, and every year thereafter on August 1st. A copy of the revised administrative rules, wastewater report forms, and instructions along with other related program information can be obtained at www.michigan.gov/deq. You may also find out more information by contacting the Environmental Assistance Center at 800-662-9278.

3.11.1 What is an Annual Wastewater Report?

The AWR is an annual report. The wastewater report shall be on forms provided by the MDEQ and shall set forth all of the following information in detail:

- Name, location, and nature of the enterprise or operation.
- An estimate of the annual total number of gallons of wastewater discharged to the waters of the state or to any sewer system.
- Name of the waters of the state or sewer system into which the wastewater is discharged.
- An estimate of the annual amount of each critical material (in ranges of pounds) used in and incidental to manufacturing processes at the location for those critical materials that exceed the annual usage threshold.
- An estimate of the annual amount of each critical material (in ranges of pounds) discharged to the waters of the state or to any sewer system.
- An estimate of the amount of critical materials discharged (in ranges of pounds) that was disposed of as a waste product or by-product and transferred to off-site locations.
- The signature of a senior management official or owner/operator certifying the form is true and accurate to the best of his/her knowledge.

3.11.2 What Qualifies as Wastewater for AWR?

Wastewater means all liquid waste discharged resulting from industrial or commercial processes, including contact cooling and condensing waters, but excludes noncontact cooling water, sanitary sewage, and storm water run off that does not come in contact with process materials, products, or byproducts.

3.11.3 What is a Critical Material?

Under the revised AWR program there are 64 substances listed on Michigan's Critical Materials Registry. The criterion for choosing these chemicals was based on their toxicity, carcinogenic and bioaccumulative nature, and persistence in the environment. Compounds that contain any of the 64 critical materials are required to be reported on under the AWR program, if used in exceedance of the annual usage threshold for that critical material.

3.12 Where To Go For Help

SUBJECT	NPDES wastewater discharge permitting –
CONTACT	DEQ, Water Division District Office
TELEPHONE	See Appendix C for the District Office telephone numbers
WEB SITE	www.michigan.gov/deq
SUBJECT	NPDES storm water discharge permits
CONTACT	DEQ, Water Division, Environmental Assessment Section
TELEPHONE	(517) 241-8993
WEB SITE	www.michigan.gov/deq - Select “Water” then “Surface Water” then “Stormwater”
PUBLICATIONS	<ol style="list-style-type: none"> 1. When It Rains It Drains – EPA publication 2. Notice of Intent (NOI) For Coverage Under the National Pollutant Discharge Elimination System (NPDES) Storm Water Discharges Associated With Industrial Activity (EQP 4664) 3. Sample Storm Water Pollution Prevention Plans 4. Industrial Storm Water Operator Training Manual 5. Storm Water Phase II Final Rule: Conditional No Exposure Exclusion for Industrial Activity. www.epa.gov/NPDES/pubs/fact4-0.pdf 6. NPDES Form 3510-11: No Exposure Certification for Exclusion from NPDES Storm Water Permitting. www.epa.gov/NPDES/pubs/noexpoform-app4.pdf
SUBJECT	Wastewater discharges to the groundwater, including septic tank/tile field systems with more than 10,000 gallons per day discharge
CONTACT	DEQ, Water Division, Groundwater Section
TELEPHONE	(517) 373-8148
WEB SITE	www.michigan.gov/deq
PUBLICATIONS	<ol style="list-style-type: none"> 1. Preventing Groundwater Contamination 2. Part 22 Groundwater Discharge Authorization Application
SUBJECT	Lists of permitted and registered hazardous waste and liquid industrial waste transporters
CONTACT	DEQ, Waste and Hazardous Materials Division
TELEPHONE	(734) 432-1256
WEB SITE	www.michigan.gov/deq
SUBJECT	Questions concerning septic tank/field systems with less than 10,000 gallons per day discharge that cannot be answered by your local health department
CONTACT	DEQ, Water Division, Environmental Health Section
TELEPHONE	(517) 241-1313
WEB SITE	www.michigan.gov/deq
PUBLICATONS	1. Michigan Criteria for Subsurface Sewage Disposal – April 1994